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Cc: Rachel Wootton[rwootton@blm.gov]; Nikki Moore[nmoore@blm.gov]
From: Butts, Sally
Sent: 2017-07-03T11:37:33-04:00
Importance: Normal
Subject: Fwd: National Monument Review - Draft Economic Reports - Quick Review
Received: 2017-07-03T11:38:26-04:00
[Basin and Range review draft 6 28 17.docx](#)
[Cascade Siskiyou draft 6 28 17.docx](#)
[Gold Butte review draft 6 28 17.docx](#)
[Organ Mountains Desert Peaks - DRAFT 6-28-17.docx](#)
[Rio Grande Del Norte Review 06 28 17.docx](#)

Hi All:

We're hoping you have some feedback on the Organ Mountains and Rio Grande economic reports. DOI had several questions and comments in those reports that we're hoping you can address. We need to provide our edits back to DOI today.

Please let me know if you have questions.

Thanks so much, Sally

----- Forwarded message -----

From: **Moore, Nikki** <nmoore@blm.gov>
Date: Thu, Jun 29, 2017 at 10:40 AM
Subject: National Monument Review - Draft Economic Reports - Quick Review
To: Aden Seidlitz <aseidlitz@blm.gov>, Theresa M Hanley <thanley@blm.gov>, Paul Petersen <ppeterse@blm.gov>
Cc: Marci Todd <m1todd@blm.gov>, Amy Lueders <alueders@blm.gov>, Jamie Connell <jconnell@blm.gov>, "McAlear, Christopher" <cmcalear@blm.gov>, "Wootton, Rachel" <rwootton@blm.gov>, Timothy Fisher <tjfisher@blm.gov>, Kathleen Benedetto <kathleen_benedetto@ios.doi.gov>, "Bowman, Randal" <randal_bowman@ios.doi.gov>, Sally Butts <sbutts@blm.gov>, John Ruhs <jruhs@blm.gov>, Michael Nedd <mnedd@blm.gov>, Kristin Bail <kbail@blm.gov>, Timothy Spisak <tspisak@blm.gov>, Aaron Moody <aaron.moody@sol.doi.gov>, Peter Mali <pmali@blm.gov>, "Brune, Jeff" <jbrune@blm.gov>

Hi all,

We have been given the opportunity to do a very quick review of the draft Economic Reports for the 5 BLM National Monuments the Secretary will be visiting next month.

The comments are due back to the Secretary's office by Monday July 3rd. If you would like to provide comments, we are asking that you please provide track changes for each state in one document. Please send back to Rachel Wootton with a copy to myself and Sally Butts by COB tomorrow (Friday June 30th) or at the latest Monday morning EST (July 3) so that we can get them reviewed and submitted back to the Secretary's office on Monday.

We have blocked out tomorrow afternoon from 3 4pm EST to answer any questions you may have. Dial-in Code:
(b)(5) CPI / Participant Code: (b)(5) CPI

Attached are the five documents for Basin and Range NM, Gold Butte NM, Cascade Siskiyou NM, Organ Mountains Desert Peaks NM, and Rio Grande del Norte NM. Thank you in advance for your quick review.

Nikki Moore
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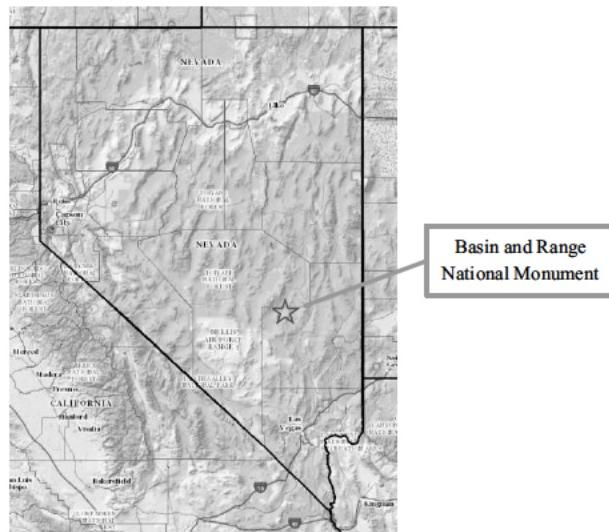
Sally R. Butts, J.D., Acting Division Chief
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Basin and Range National Monument

Economic Values and Economic Contributions

DRAFT



Introduction

The purpose of this paper is to provide information on the economic values and economic contributions of the activities and resources associated with Basin and Range National Monument (BARNM) as well as to provide a brief economic profile of Lincoln County.¹

Background

Basin and Range National Monument was designated in 2015 to protect cultural, prehistoric, historic, paleontological, and geologic resources in the Great Basin between the Sierra Mountains and Colorado Plateau. Spanning a total of approximately 703,500 acres in southeastern Nevada, about 526,000 acres are in Lincoln County, Nevada, with the remaining 177,000 acres in a remote area of northeastern Nye County, Nevada.² Prior to designation, the land was managed by the Bureau of Land Management (BLM) Ely Field Office, with the exception of approximately 4,400 acres of private inholdings that continue to exist within Monument boundaries. The designation does not affect grazing operations in the Monument, including use of motorized vehicles, construction and maintenance of water infrastructure, and construction of fences and other range improvements relating to grazing operations. Additionally, the designation does not affect U.S. military uses of the airspace and allows continued military access for emergency response and training activities.

Since the passage of the Lincoln County Conservation, Recreation, and Development Act of 2004, there has been over 768,000 acres of designated wilderness as components of the National Wilderness Preservation System in the county.³ One of these wilderness areas (Worthington Mountains Wilderness) is within the Monument boundaries.

Public outreach

A public meeting regarding a proposal to withdraw land in the area from mining was held in February 2015. Since designation, six scoping meetings have been held in the surrounding communities to identify issues and planning criteria to be considered in the BLM

Basin and Range National Monument

Location: Lincoln County and Nye County, NV
Managing agencies: BLM
Adjacent cities: Ely, NV; Caliente, NV; Alamo, NV.
Tribes: Shoshone; Paiute
Resource Areas:
 Recreation Energy Minerals
 Grazing Timber Scientific Discovery
 Tribal Cultural

Table 1. Lincoln County and State of Nevada Economic Snapshot

Measure	Lincoln County, NV	Nevada
Population, 2016 ^a	5,194	2,798,636
Employment, December 2016 ^b	1,234	1,307,813
Unemployment rate, April 2017 ^b	3.9%	4.6%
Median Household Income, 2015 ^a	\$44,866	\$51,847

^aU.S. Census Bureau, 2011-2015 American Community Survey

^b <http://nevadaworkforce.com/>

https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables

¹ The BLM provided data used in this paper.

² Approximately 4,400 acres (0.6% of the Monument) are private inholdings.

³ <https://www.gpo.gov/fdsys/pkg/PLAW-108publ424/pdf/PLAW-108publ424.pdf>

Resource Management Plan and as part of complying with the National Environmental Policy Act.⁴ The approved RMP is anticipated to be published in late 2018.⁵ In addition, in May 2017 the Nevada Legislature passed an assembly joint resolution (ARJ13) expressing support for the enactment and use of the Antiquities Act and the designation of the BARNM.⁶

Local Economy and Economic Impacts

BARNM is located far from population centers and areas adjacent to the Monument are sparsely populated. The Monument has no facilities and few access roads. *Table 1* presents socio-economic metrics for Lincoln County and the state of Nevada. While 25% of the Monument is in Nye County, it is geographically not located near the areas of Nye County where the majority of the population resides.⁷ Lincoln County is a remote and rural area of Nevada containing roughly 0.2% of the State's population. The population of the county increased about 25% from 2000 to 2015, compared to a 40% increase in State population. Compared to the State, the percentage of household income associated with labor earnings was lower while the percentage of household income resulting from Social Security or retirement income was higher.

Activities and Resources

Information on the economic contributions associated with the activities occurring at Basin and Range National Monument are provided below.

- **Recreation:** A variety of recreation activities are available at BARNM including: dispersed camping, hiking, biking, OHV riding, rock climbing, wildlife and wild horse viewing, and viewing sites associated with cultural, prehistoric, and historic legacies. Hunting and trapping are also permitted as regulated by the State of Nevada. Visitor use has only been tracked through visitor registration sheets at the most popular petroglyph sites within the Monument, though BLM plans to install traffic counters in the fall of 2017 in order to more accurately track visitation. Estimates of visitation for FY 2016 range from 550 to 1,100 visitors. The value added associated with those recreation visits is estimated to be about \$35,000.
- **Energy:** There is no history of energy production in the area.
 - **Coal.** There have been no coal developments in the Monument area.
 - **Oil and gas.** There are currently no producing oil and gas wells within the Monument. The most recent well was drilled in 1996 and in the past 50 years, only four oil wells have been drilled; none were developed. There are several parcels with existing leases for oil and gas, and development on those existing leases could occur. Additionally, an application for permit to drill (APD) was approved in February 2016 for a lease that expires in 2020, though no wells have yet been drilled.⁸

⁴ Basin and Range National Monument Resource Management Plan Scoping Report, 2016.

⁵ https://eplanning.blm.gov/cpl-front-office/eplanning/planAndProjectSite.do?methodName_dispatchToPatternPage¤tPageId_88819.

⁶ <https://www.leg.state.nv.us/App/NELIS/REL/79th2017/Bill/5507/Overview>.

⁷ Over 80% of the population of Nye County resides in the Pahrump Census-designated place, which is an area bordering California to the west of Las Vegas.

⁸ BLM data.



- **Geothermal.** The area included in the Monument is within an area identified by USGS as having medium geothermal favorability.⁹
- **Non-fuel minerals.**
 - While there has been historic mining in the area by early European and American settlers, there has been no recent locatable mineral production on lands within the Monument boundaries.
 - There are three existing gravel pits that are used by Lincoln County for road maintenance but are not sold pursuant to any market activities. The sand and gravel permits were issued in 2012 to Lincoln County for ten years. They will expire in 2022.
- **Timber.** There is no commercial timber production in BARNM but timber harvest activities such as non-commercial Christmas tree cutting and collection of wood for posts and firewood are allowed by permit. The Monument proclamation allows for the continuation of all pre-designation timber activities.
- **Grazing.** The allotments that are wholly or partially contained within the boundaries of BARNM include approximately 32,000 permitted Animal Unit Month (AUMs).¹⁰ About 10,200 AUMs were billed in FY 2016. Those AUMs were associated with economic output of about \$2.1 million and supported about 27 jobs. The Monument proclamation allows for the continuation of all pre-designation grazing activities, including use of motorized vehicles, construction and maintenance of stock watering facilities, and construction of fences and other range improvements related to grazing operations.
- **Tribal cultural, archeological, and historic resources.** Numerous tribes have ties to the BARNM area and the Monument contains resources that continue to be utilized by contemporary Native Americans. As over 90% of the Monument has not been inventoried for cultural resources, it is likely that there are many unknown cultural resources that have been neither documented nor evaluated for inclusion in the National Register of Historic Places.¹¹ Documented resources include prehistoric and historic artifacts and sites. There are two archaeological districts and several sites within the Monument to view petroglyphs. Traces of early Euro-American settlement, including mining structures, and the continuation of ranching lifestyles dating back to the late 19th century, also exist on the Monument. American artist Michael Heizer has been granted a Conservation Easement for his private land within BARNM, on which he is constructing a piece of art work that is similar in size to the National Mall. This work is expected to be completed in 2020 and has attracted interest in the art community.

Multiple Use and Tradeoffs Among Resource Uses

This section presents some information to help understand land management tradeoffs. Decision-making often involves multiple objectives and the need to make tradeoffs among those objectives. However, tradeoffs and decision making are often subject to constraints, such as Monument designations. In general, market supply and demand conditions drive energy and minerals activity; societal preferences

⁹ <https://pubs.usgs.gov/fs/2008/3082/>.

¹⁰ BLM measures an AUM as the amount of forage needed to sustain one cow and her calf, one domestic horse, or 5 sheep or goats for one month. <https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing/fees-and-distribution>.

¹¹ BLM data.

and household disposal income affect recreation activity levels; and market prices and range conditions affect the demand for forage. Culturally important sites and unique natural resources, by definition, have limited or no substitutes and thus tradeoffs are typically limited. A particularly challenging component of any tradeoff analysis is estimating the nonmarket values associated with BARNM resources, particularly the nonmarket values associated with cultural and scientific resources.

Planning for permitted resource use on National Monuments will involve trade-offs among different activities on the land area being managed in order to allow permitted activities that do not impair monument objects. In some cases, certain areas of the Monument may be appropriate for more than one use. After the careful consideration of tradeoffs, management decisions in those cases may prioritize certain uses over others. In other cases, land areas may be more appropriate for a particular use and activities could be restricted to certain areas of the Monument. Factors that could inform these tradeoffs include demand for the good or activity, prices, costs, and societal preferences. Other considerations might include the timeframe of the activity - how long the benefits and costs of a given activity would be expected to extend into the future. Trust responsibilities and treaty rights should also be considerations.

In considering any trade-offs, it is not just the level and net economic value associated with an activity that occurs in a given year that is relevant to decision making. Virtually all activities within the Monument occur over time and it is the stream of costs and benefits over a given period of time associated with each activity that is relevant. For example, recreation activities could continue indefinitely assuming the resources required for recreation remain intact and of sufficient quality for the activity. Likewise, the values associated with the natural and cultural resources could continue indefinitely provided they are not degraded by other activities. Grazing could also continue indefinitely as long as the forage resource is sustainably managed and remains consistent with the protection of monument objects. Timber harvest may also continue indefinitely as long as the timber resource is sustainably managed. The stream of costs and benefits associated with some other non-renewable resources would be finite, however (assuming these activities were consistent with the designation). For example, oil, gas, coal and minerals are all non-renewable resources and would only be extracted as long as the resource is economically feasible to produce.

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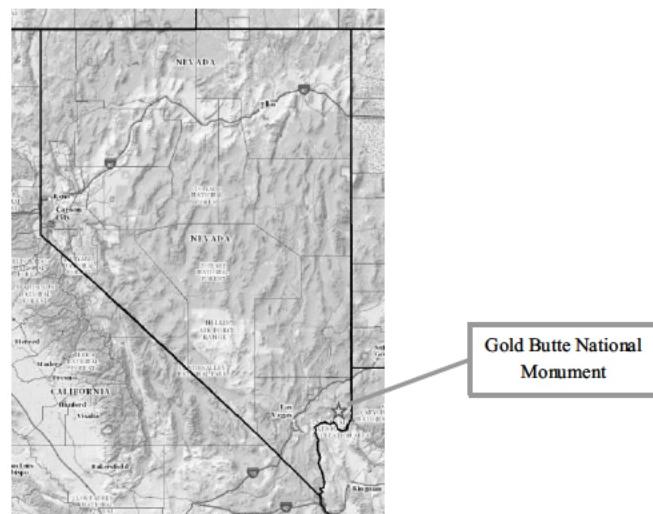




Gold Butte National Monument

Economic Values and Economic Contributions

DRAFT



Introduction

The purpose of this paper is to provide information on the economic values and economic contributions of the activities and resources associated with Gold Butte National Monument (GBNM).¹

Background

Gold Butte National Monument was designated in 2016 for purposes of protecting an array of historic and scientific resources, including critical habitat of the threatened desert tortoise, the once-thought-extinct relic leopard frog, archaeological sites, areas of spiritual significance to Native American tribes, historic ranching and mining sites, rare endemic plants, and dinosaur tracks. The monument covers roughly 297,000 acres in Clark County, NV and lies between the eastern boundary of Lake Mead National Recreation Area and the western boundary of Grand Canyon-Parashant National Monument; it is bordered by these Federal lands to the east, west, and south. Prior to designation, all land within the Monument was Federal land, the majority of which was managed by the BLM's Las Vegas Field Office with the exception of approximately 11,800 acres that had been managed by the Bureau of Reclamation. In addition, nearly all of the land had been protected under an Area of Critical Environmental Concern (ACEC) designation since the corresponding Resource Management Plan (RMP) was updated in 1998. Parts of the Monument were also designated as Wilderness or Wilderness Study Areas prior to Monument designation.

Public outreach

Legislation for protecting the Gold Butte area has been introduced repeatedly since a proposal to designate it as a National Conservation Area was made in 2008. In 2015, a public meeting hosted by Nevada Senator Harry Reid and Representative Dina Titus was attended by representatives of DOI. The Nevada State Legislature passed a joint resolution (ARJ13) expressing support for the designation of the GBNM.²

Local Economy and Economic Impacts

GBNM is located in Clark County, NV. The economy in Clark County is dominated by Las Vegas, where the most important industries are gaming, entertainment, and tourism. The nearest populated area and access point to GBNM, Mesquite, NV, has an economic profile similar albeit significantly smaller -

Gold Butte National Monument

Location: Clark County, NV

Managing agency: BLM

Adjacent cities/towns: Mesquite, NV

Adjacent Federal lands: Grand Canyon-Parashant National Monument; Lake Mead NRA.

Resource Areas:

- Recreation Energy Minerals
- Grazing Timber Scientific Discovery
- Tribal Cultural

¹ The BLM provided data used in this paper.

² <https://www.leg.state.nv.us/App/NELIS/REL/79th2017/Bill/5507/Overview>

- to Las Vegas based on U.S. Census Bureau estimates of employment by industry, with over a third of civilians employed in the arts, entertainment, recreation, accommodation, and food service industries.³

Definitions

Value Added: A measure of economic contributions; calculated as the difference between total output (sales) and the cost of any intermediate inputs.

Economic Value: The estimated net value, above any expenditures, that individuals place on goods and services; these are particularly relevant in situations where market prices may not be fully reflective of the values individuals place on some goods and services.

Employment: The total number of jobs supported by activities.

Activities and Resources

Information on the economic contributions associated with the activities occurring at Gold Butte National Monument are provided below.

- **Recreation.** The opportunities for outdoor recreation in GBNM include camping and hiking, although there are no designated or marked hiking trails and no developed campgrounds or other facilities within the Monument. Most vehicle routes are unmaintained dirt roads and recommended for 4-wheel drive only. The temperatures in the area can be extreme. Hunting is permitted and is regulated by the State of Nevada. [For the period including FY 2016 and the first half of FY 2017, it is estimated that there have been around 21,000 visits. During the years 2012-2015 there were an average of 88,576 visits annually. This level of annual visitation is associated with an estimated \$4.3 million in value added and supported about 71 jobs. Economic values, in contrast to economic contributions, represent the net value, above and beyond any expenditures, that individuals place on goods and services. It is not appropriate to sum values for economic contributions and economic values because they represent different metrics. The economic value associated with the average number of visits over FY 2012-2015 is estimated to be about \$5 million.⁴
- **Energy.** There is no energy transmission infrastructure or recent history of energy production in the area and the land within the Monument has not been surveyed by the USGS for potential for coal or oil and gas.⁵ The production of coal, oil, gas, and renewable energy was restricted when these areas were designated as ACECs in the 1998 RMP. Prior to this, there were leases or lease applications for oil and gas on the "Gold Butte A" ACEC, part of which is now within Monument boundaries, but no producing wells were drilled. [This is the only portion of the Monument that was formerly open to fluid mineral leasing subject to no surface occupancy stipulations; the rest of the Monument had been closed to leasable minerals (e.g., coal, oil, gas, and geothermal resources) prior to designation of the Monument.]
- **Non-fuel Minerals.** While there has been historic mining in the area by early European and American settlers, there has been no recent locatable mineral production on lands within the

³ 2015 ACS 5-Year Estimates, Comparative Economic Characteristics

⁴ The estimate of economic value is based on the general recreation value for the Intermountain Region from the USGS Benefits Transfer Toolkit (<https://my.usgs.gov/benefit-transfer/activity/display/6980#averageValues>).

⁵ USGS data.

Monument boundaries. [Two historic mining districts occupied parts of what is now GBNM, and the mining history of these districts is characterized by “much development and exploration but little production”. Limited amounts of copper, nickel, cobalt, platinum, tungsten, mica, and beryllium were produced in one mining district and minor amounts of gold, silver, copper, lead, zinc, and mica were produced in the other.] USGS mineral resource assessments found varying degrees of potential for other minerals, including uranium, gypsum, low-sulfide gold-quartz, vermiculite, crushed-rock aggregate, and sand and gravel aggregate. Nearly all of the land within the monument was closed to mineral materials in the 1998 Las Vegas RMP and then withdrawn from mineral entry in 2002 by the Clark County Conservation of Public Land and Natural Resources Act. There are two mining claims currently located in GBNM that could potentially be developed in the future but production would first require a validity exam due to the 2002 mineral withdrawal.⁶

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- **Timber.** There are no commercial timber resources in GBNM. Seed collection is allowed by permit in areas that are not desert tortoise habitat.
 - **Grazing.** Livestock grazing has not been permitted in the monument area since 1998, and the proclamation does not allow for any new grazing permits or leases within the monument. Grazing allotments for all ACECs in the area under management by the Las Vegas Field Office were bought out by Clark County in the 1990s.⁷ There are, however, two allotments administered by the Arizona Strip Field Office that are also partially within Monument boundaries. One allotment is ephemeral and one has less than 15% of its acreage within Monument boundaries⁸. It is estimated that the number of billed AUMs for this portion of the monument in recent years is fewer than 500; the economic contributions for this level of grazing are not significant.⁹
 - **Tribal cultural, archeological, scientific, and historic resources.** There are a variety of non-commodity resources in GBNM that the Monument designation sought to protect. This includes sites of spiritual significance and ancestral grounds of the Moapa Band of Paiute, rock art and petroglyphs, the abandoned mining town of Gold Butte and other pioneer-era structures, unique and endemic plants such as the Las Vegas bearpoppy, and critical habitat for the desert tortoise. The previous designation as an ACEC was specifically for the purpose of protecting historic and prehistoric archeological resources, including rock shelters and caves, roasting pits, campsites, stone tools, projectile points, rock art, lithic scatters, pottery fragments, historic mining artifacts, historic mining towns, and historic mines.
- In recent years, rock faces, including those containing prehistoric petroglyphs, have been found defaced with graffiti and bullet holes. Parts of pioneer-era structures, including historic stock corrals, have been stolen and even burned for firewood, as well as sustained damage due to bullet holes. An illegal water system has been found trenched throughout terrain that is considered protected habitat for the threatened Mojave Desert tortoise, the development of which was done without the necessary NEPA compliance.

⁶ BLM data.

⁷ EA for Route Designations for Selected ACECs Located in the North East Portion of Clark County within the Las Vegas BLM District, 2007

⁸ BLM data.

⁹ BLM measures an AUM as the amount of forage needed to sustain one cow and her calf, one domestic horse, or 5 sheep or goats for one month. <https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing/fees-and-distribution>.

Multiple Use and Tradeoffs Among Resource Uses

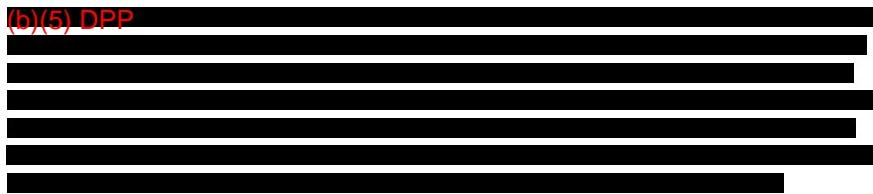
This section presents some information to help understand land management tradeoffs.

Decision-making often involves multiple objectives and the need to make tradeoffs among those objectives. However, tradeoffs and decision making are often subject to constraints, such as Monument designations. In general, market supply and demand conditions drive energy and minerals activity; societal preferences and household disposal income affect recreation activity levels; and market prices and range conditions affect the demand for forage. Culturally important sites and unique natural resources, by definition, have limited or no substitutes and thus tradeoffs are typically limited. A particularly challenging component of any tradeoff analysis is estimating the nonmarket values associated with GBNM resources, particularly the nonmarket values associated with cultural and scientific resources.

Planning for permitted resource use on National Monuments will involve trade-offs among different activities on the land area being managed in order to allow permitted activities that do not impair monument objects. In some cases, certain areas of the Monument may be appropriate for more than one use. After the careful consideration of tradeoffs, management decisions in those cases may prioritize certain uses over others. In other cases, land areas may be more appropriate for a particular use and activities could be restricted to certain areas of the Monument. Factors that could inform these tradeoffs include demand for the good or activity, prices, costs, and societal preferences. Other considerations might include the timeframe of the activity - how long the benefits and costs of a given activity would be expected to extend into the future. Trust responsibilities and treaty rights should also be considerations.

In considering any trade-offs, it is not just the level and net economic value associated with an activity that occurs in a given year that is relevant to decision making. Virtually all activities within the Monument occur over time and it is the stream of costs and benefits over a given period of time associated with each activity that is relevant. For example, recreation activities could continue indefinitely assuming the resources required for recreation remain intact and of sufficient quality for the activity. Likewise, the values associated with the natural and cultural resources could continue indefinitely provided they are not degraded by other activities. Grazing could also continue indefinitely as long as the forage resource is sustainably managed and remains consistent with the protection of monument objects. Timber harvest may also continue indefinitely as long as the timber resource is sustainably managed. The stream of costs and benefits associated with some other non-renewable resources would be finite, however (assuming these activities were consistent with the designation). For example, oil, gas, coal and minerals are all non-renewable resources and would only be extracted as long as the resource is economically feasible to produce.

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Rio Grande del Norte National Monument

Economic Values and Economic Contributions

DRAFT



Rio Grande del
Norte National
Monument

Introduction

The purpose of this paper is to provide information on the economic values and economic contributions of the activities and resources associated with Rio Grande del Norte National Monument (RGDNNM) as well as to provide a brief economic profile of Taos County.¹

Background

Rio Grande del Norte National Monument encompasses 242,455 acres in Taos County, NM and was established by Presidential Proclamation on March 25, 2013. The resources identified in the Proclamation include cultural and historic resources, ecological diversity, wildlife, and geology. Prior to designation, the area was managed by the BLM. Post designation, BLM continues to manage the area.

The Rio Grande Wild and Scenic River (designated in 1968, extended in 1994), a key component which covers 15,000 acres in the Monument, including 68 miles south of the Colorado border, is managed to protect Outstandingly Remarkable Values of cultural, fish and wildlife habitat, riparian and scenic values, geologic features, and recreation.²

Several legislative proposals have been introduced into the House and/or Senate to establish a National Conservation Area in areas covered by the current monument designation S.432, the Cerros del Norte Conservation Act, introduced in the Senate 02/16/2017, designates the Cerro del Yuta Wilderness (13,420 acres) and Rio San Antonio Wilderness (8,120 acres) within the Rio Grande del Norte National Monument in New Mexico as wilderness and as components of the National Wilderness Preservation System. The San Antonio Wilderness Study Area (7,050 acres) was established by Congress; other areas managed for wilderness characteristics include the unit adjacent to the San Antonio WSA (9,859 acres) and the unit within Ute Mountain (13,190 acres).

The National Historic Preservation Act (NHPA) requires cultural resources to be evaluated by the National Register of Historic Places (NRHP). The NRHP does not recognize all of the categories of cultural resources named in the 2013 Presidential Proclamation, which likely provides more “protection” than the NHPA.

The BLM manages the Monument for multiple use (hunting, fishing, recreation, grazing, woodcutting, and collection of herbs, pine nuts, and other traditional uses), while protecting the historic and scientific resources identified in the Proclamation, and providing opportunities for scientific study of those

Rio Grande del Norte National Monument

Managing agencies: BLM
County: Taos
Gateway communities: Taos, NM; Questa, NM
Tribes: Taos and Picuris Pueblos; Jicarilla, Apache and Ute Tribes

Resource Areas:

Recreation Energy Minerals
 Grazing Timber Scientific Discovery Tribal Cultural

¹ The BLM provided data used in this paper.

² National Wild and Scenic Rivers System. <https://www.rivers.gov/rivers/rio-grande-nm.php>.

resources. Taos and Rio Arriba County have claims under RS 2477, but none are contested or challenged.³

The BLM Taos Field Office is in the process of preparing a monument management plan. Until this plan is complete, the Taos Resource Management Plan (RMP-May 2012) remains the current land use plan for the Monument.⁴

Public outreach prior to designation

Congressional delegations and community groups held multiple public meetings from 2007 to 2013 regarding the proposed national monument prior to designation. The BLM participated in these meetings as subject matter experts, and did not keep records of dates, attendees or content of these meetings. A coalition of sportsmen, ranchers, land grant members, water right holders, outfitters and guides, local business groups, local government bodies and others was formed in 2007. The coalition held public meetings, shared information, and created a website that describes this effort: www.riograndedelnorte.org/monument-review.

During formal scoping from January 2014 to March 2014, the BLM received approximately 1,200 public comments (126 unique comments), as published in the 2014 scoping report.⁵

Local Economy and Economic Impacts

Table 1 presents socio-economic information for Taos County. The population of Taos County increased about 43% from 1990 to 2015. For comparison, during the same period the population of New Mexico grew about 38%, and the U.S. population grew about 29%. About 8% of the County population is Native American, lower than the New Mexico State average. Over the last eight years, the unemployment rate in Taos County rose to about 10.7% in 2010 and has since declined to about 8.6% which is above the state average of 6.2%. Median household income is about 88% of the state average.

Table 1. Taos County and State of New Mexico Economic Snapshot

Measure	Taos County	State of New Mexico	(b)(5) DPP
Population, 2015 ^a	32,943	2.1 million	
Native American population as a % of the total	7.6	10.3	
Employment, December 2015 ^c	8,741	626,284	
Unemployment rate, March 2017	8.6	6.2	
Median Household Income, 2015 ^b	36,582	44,963	

^aU.S. Census Bureau, 2011-2015 American Community Survey.

^c

<https://www.census.gov/quickfacts/fact/map/taoscountynewmexico/BZA110215#viewtop>

³ Revised Statute 2477 is an 1866 law allowing construction of public access roads across public lands, repealed in 1976 under the Federal Land Policy and Management Act (FLPMA). RS 2477 claims are court cases about continuing use of these roads.

⁴ The Taos RMP is available here: [https://eplanning.blm.gov/epl-front-office/projects/lup/68121/86167/103325/Approved_Taos_RMP_-5.16.12_\(print_version\).pdf](https://eplanning.blm.gov/epl-front-office/projects/lup/68121/86167/103325/Approved_Taos_RMP_-5.16.12_(print_version).pdf)

⁵ [https://eplanning.blm.gov/epl-front-office/projects/lup/72807/97058/117224/RGdN_Scoping_Report_5.22.14_\(1\).pdf](https://eplanning.blm.gov/epl-front-office/projects/lup/72807/97058/117224/RGdN_Scoping_Report_5.22.14_(1).pdf)

Figure 1 shows percentage employment by sector in Taos County for 2015.⁶ The largest sectors are accommodations and food service (22%), retail trade (18%), and health care (16%).

Information is provided below on two different types of economic information: "economic contributions," and "economic values." Both types of information are informative in decision making.

Economic contributions track expenditures as they cycle through the local and regional economy, supporting employment and economic output. Table 2 provides estimates of the economic contribution of activities associated with RGDNM.

Economic values, in contrast to economic contributions, represent the net value, above and beyond any expenditures, that individuals place on goods and services. It is not appropriate to sum values for economic contributions and economic values because they represent different metrics. To the extent information is available, some economic values are presented in Table 3 along with information on the timing and drivers of future activity. For commodities bought and sold in markets (e.g., oil, gas, etc.), the economic values are closely related to the market prices of the commodities. For goods and services typically not bought and sold in markets the values are estimated based on surveys for estimating values individuals have beyond direct expenditures

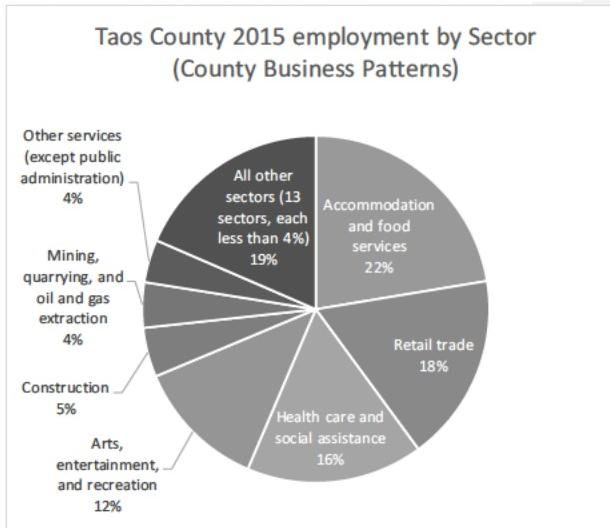
Definitions

Value Added: A measure of economic contributions; calculated as the difference between total output (sales) and the cost of any intermediate inputs.

Economic Value: The estimated net value, above any expenditures, that individuals place on goods and services; these are particularly relevant in situations where market prices may not be fully reflective of the values individuals place on some goods and services.

Employment: The total number of jobs supported by activities.

Figure 1. Percent of Employment by Sector, Taos County, 2015



⁶ U.S. Census Bureau County Business Patterns, 2015.

Activities and Resources Associated with RGDNNM

Since designation, few changes have occurred to livestock grazing AUMs, rights-of-way restrictions, and forestry and wildlife activities.⁷ Details on the activities occurring at RGDNNM are provided below.

- **Recreation:** Hunting, fishing, hiking, and general recreation all occur on the Monument. Annual visitation is shown in

Figure 2. Average visitation has been about 162,000 over 2008-2016. While trends in the data are difficult to discern, with the exception of 2014, visitation in recent years has

generally been higher than pre-designation years. BLM indicates that there has been an increase of use at developed recreation sites. Recreation staff managing these developed sites in the lower part of the monument have reported that use increased at an average annual yearly rate of 20% since designation. Camp and day-use sites that were filled only a few times each year are now being used at capacity every weekend from May through mid-September. The Taos Plateau area west of the Rio Grande has also had a noticeable increase in visitation.

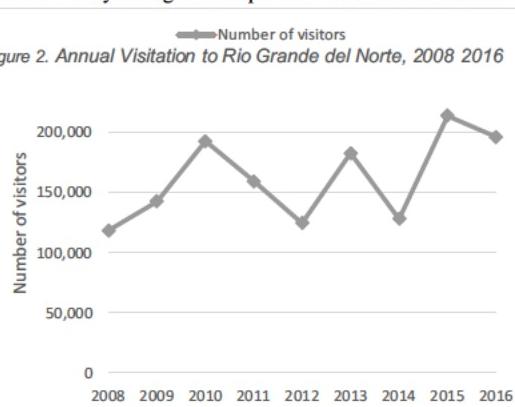
There is anecdotal information suggesting that the town of Taos has experienced an increase in economic activity associated with increased visitation to the Monument

- Fishing is an everyday occurrence along the Rio Grande in the monument, and accounts for about 13% of total visitor use each year. The New Mexico Department of

Table 2. Rio Grande del Norte Estimated Economic Contributions, 2016

Activities	Economic Output, \$millions	Value added (net additions to GDP), \$ millions	Employment supported (number of jobs)
Recreation	13.4	7.4	169
Non-energy Minerals			
Grazing	1.9	N/A	42

Figure 2. Annual Visitation to Rio Grande del Norte, 2008-2016



⁷ The 2012 Taos RMP established the Taos Plateau Area of Critical Environmental Concern (ACEC) which limited commercial or surface disturbing activities that had been occurring.

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- 2017, a total of 3,569 permits were issued for the three game management units covering the National Monument.⁸
- Recreation activities provide the opportunity for economic activity to be generated from tourism for an indefinite period of time. The economic contributions occur annually, and in cases where visitation increases over time, recreation generates additional activity each year. These contributions affect the regional and state economies.
 - Recreation activities based on visitation to the Monument are estimated to contribute about \$7.4 million in value added (net economic contributions) and support 169 jobs.⁹ The economic value associated with the 195,948 recreational visits in FY 2016 (valued at \$54.19 per visit, see Table 3) is estimated to be about \$10.6 million.
 - **Energy:** There is no oil, gas, coal or renewable energy production within the monument. The volcanic history of the area eliminated the potential for hydrocarbons, so there is no oil and gas potential within the monument. There is no renewable energy production within the Monument (the 2012 Taos Resource Management Plan excludes wind and solar energy development). A BLM Solar Energy Zone (~16,000 acres) lies immediately north of the Monument in Colorado, east of US 285.
 - **Energy transmission:** There are four transmission line rights-of-way for electricity (managed by BLM) and 12 distribution lines to end-users. There are no gas pipelines and no applications pending for new or upgraded lines.
 - **Non-fuel minerals.** Mineral sales are not allowed within the monument under the current management plan, other than those associated with valid existing rights. However, there were no mining claims or operations at the time of designation so there are no valid existing rights for mining claims or mining operations in the RGDNM.¹⁰ There are no mineral developments or process facilities adjacent to or impacted by the monument designation. There are large scale perlite mining operations on private lands adjacent to or near the monument boundary. These are considered world-class perlite deposits in the No Agua Mining District. These operations include some on-site processing facilities. These operations are on private/patented land and are subject to the State of New Mexico, Mining and Mineral Division regulations. These existing perlite operations are minimally affected by the monument, if at all. Taos Gravel is an existing large-scale sand and gravel operation on BLM land adjacent to the monument boundary. Their operations might be minimally affected by the monument if noise and VRM issues apply to their existing operation.
 - **Timber.** The Rio Grande del Norte National Monument is not available for large scale timber harvesting or for commercial fuelwood harvest. All removal of fuelwood is for personal harvest; from 2008-2016 sales varied between about 200 and 800 CCF of green fuelwood. Since 2013 several hazardous fuels reduction and forest health treatments were completed by BLM, in partnership with other agencies (federal, state, and non-profit). In 2016 BLM began to permit the removal of dead and

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⁸ The New Mexico Game and Fish Department has continued to keep 10,903 acres, within the monuments 242,455 acres, closed to hunting, in coordination with the BLM, in a developed recreation area with high density use.

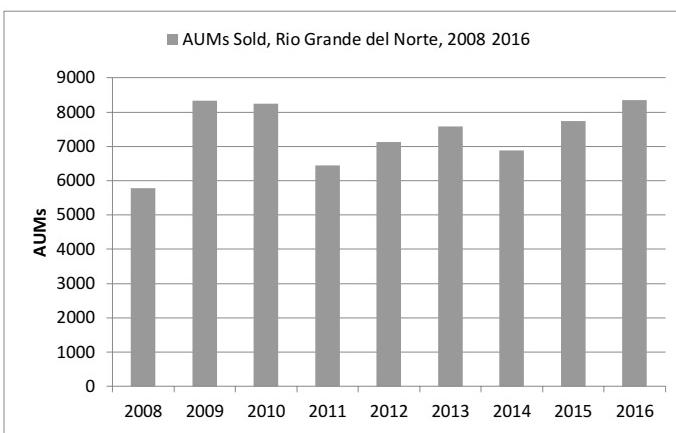
⁹ BLM data.

¹⁰ The 2012 Taos Resource Management Plan designated the Taos Plateau Area of Critical Environmental Concern (ACEC) that covers most of the Rio Grande del Norte National Monument. The ACEC and the Rio Grande Wild and Scenic River were closed to salable mineral disposal and all leasable mineral entry. Locatable mineral entry was allowed in most of the area, with the exception of the San Antonio WSA (7,050 acres), the Ute Mountain area (13,190 acres), and the Wild Rivers zone of the Rio Grande Gorge Recreation Area (about 10,000 acres).

down fuelwood. It is anticipated in the future new areas will be available for green fuelwood cutting and removal.

- **Grazing.** There are 71 grazing allotments within the monument: 62 are active grazing allotments and 9 were closed to grazing before the designation. Within the monument there are currently 13,759 permitted AUMs. Figure 3 shows the number of AUMs used annually since 2008. Actual use

Figure 3. AUMs Sold, Rio Grande del Norte, 2008-2016



fluctuates due to a combination of grazing permittee's herd sizes, weather conditions, and range conditions. The amount of permitted grazing use has not changed since the designation of the monument. In FY 2016, grazing supported an estimated 42 jobs and about \$2 million in economic output.

- **Cultural, archeological, and historic resources.** Indigenous communities may utilize natural resources in ways and to an extent different from the general population, and the role that natural resources play in the culture of these indigenous communities may differ from that of the general population. Culturally important sites and unique natural resources, by definition, have limited or no substitutes. Recognizing this is a critical consideration in land management because it may affect consideration of tradeoffs. Activities currently undertaken by tribal members include hunting, fishing, gathering, wood cutting, and the collection of medicinal and ceremonial plants, edible herbs, and materials for crafting items like baskets and footwear, as well as transmitting knowledge and culture related to these resources and activities. The Ojo Caliente Area of Critical Environmental Concern (ACEC) (66,150 acres) contains relevant and important cultural resources, as well as scenic quality, sensitive ecological processes, riparian areas, and special status species and other critical wildlife habitat values. This ACEC includes some of the largest (200-to-2000 rooms) prehistoric and early historic period pueblo ruins in the Southwest. These individual sites and the attendant landscapes are important to the Tiwa and Tewa Pueblo people of the upper Rio Grande region and contain important religious and sacred sites. This BLM site is currently managed specifically for visitation and enhanced visitor experiences. Also within the Ojo Caliente ACEC is Mesa Prieta, a 6,500-acre tract of private land currently under consideration for acquisition by the BLM. Mesa Prieta contains over 80,000 petroglyph sites and other archaeological remains associated with prehistoric Tewa and Spanish Colonial cultures. It is unique to the region and exceeds the numbers of petroglyphs recorded

to date within the Petroglyph National Monument near Albuquerque. The Ojo Caliente ACEC boundaries were expanded in the 2012 Taos Resource Management Plan (RMP) to include Mesa Prieta as a potential acquisition and addition to this management unit. Cultural landscapes extend beyond the confines of the current management boundary. Potential acquisition of adjacent lands from willing owners through purchase, exchange, or donation, or expansion of the monument boundaries to include adjacent BLM lands containing critical cultural resources and cultural landscape elements, would further provide management of the cultural resources within the contexts of its landscape.

Multiple Use and Tradeoffs Among Resource Uses

This section presents some information to help understand land management tradeoffs. Designating the monument closed lands to mineral entry, so within the context of the Monument Designation, some tradeoffs are not relevant.

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Decision-making often involves multiple objectives and the need to make tradeoffs among those objectives. In general, market supply and demand conditions drive energy and minerals activity; societal preferences and household disposal income affect recreation activity levels; and market prices and range conditions affect the demand for forage. Culturally important sites and unique natural resources, by definition, have limited or no substitutes and thus tradeoffs are typically limited. A particularly challenging component of any tradeoff analysis is estimating the nonmarket values associated with relevant resources, particularly cultural resources.

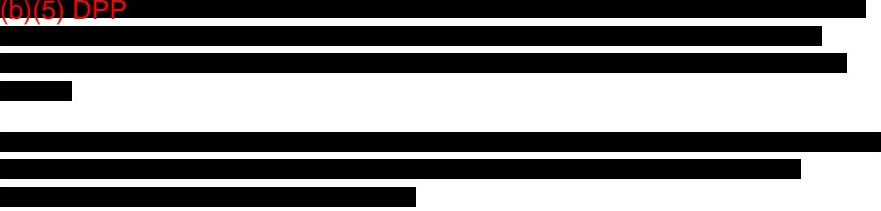
Planning for permitted resource use on National Monuments will involve trade-offs among different activities on the land area being managed so as to allow permitted activities that do not impair monument objects. In some cases, certain areas of the Monument may be appropriate for more than one use, and trade-offs must be considered and management decisions may be made that prioritize certain uses over others. In other cases, land areas may be more appropriate for a particular use and activities could be restricted to certain areas of the Monument. Factors that could inform these tradeoffs include demand for the good or activity, prices, costs, and societal preferences. Other considerations might include the timeframe of the activity - how long the benefits and costs of a given activity would be expected to extend into the future. Trust responsibilities and treaty rights should also be considerations.

In considering any trade-offs, it is not just the level and net economic value associated with an activity that occurs in a given year that is relevant to decision making. Virtually all activities within the Monument occur over time and it is the stream of costs and benefits over a given period of time associated with each activity that is relevant. For example, recreation activities could continue indefinitely, assuming the resources required for recreation remain intact and of sufficient quality for the activity. Likewise, the values associated with the natural and cultural resources could continue indefinitely provided they are not degraded by other activities. Grazing could also continue indefinitely as long as the forage resource is sustainably managed and remains consistent with the protection of monument objects. Fuelwood harvest may also continue indefinitely as long as the timber resource is sustainably managed. The stream of costs and benefits associated with some other non-renewable resources would be finite, however (assuming these activities were consistent with the designation). For example, oil, gas, coal and minerals are all non-renewable resources and would only be extracted as long

as the resource is economically feasible to produce. Management costs would also be a consideration, over the same time period as the activities continue.

The RGDNNM Proclamation contains specific provisions for the protection of heritage objects and values extending beyond specific resources concerns. Alternative options available for protection of resources include authorities such as the Native American Graves Protection and Repatriation Act, Paleontological Resources Preservation Act, Archaeological Resources Protection Act, Historic Preservation Act and agency-specific laws and regulations. These could provide some options to protect specific resources found in the RGDNNM. Protection would likely occur on a site-by-site or resource-by-resource basis and also would take a significant amount of time to accomplish under these various laws. These laws may not provide a mechanism to protect all cultural or tribal resources in Monument.

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DRAFT – June 28, 2017 – Figures, values, and text are subject to revision

Table 3 Summary of RGDNM Activities and Economic Values, FY 2016

Activities	Level of annual activity	Economic Value	Timing	Drivers of current and future levels of activity
Recreation	FY 2016: 195,948 visitors (BLM)	\$54.19/visitor day ^a	Visitation could continue indefinitely if landscape resources remain intact and of sufficient quality.	Societal preferences for outdoor recreation; disposable income; changing individual preferences for work and leisure time
Oil, gas, coal production; Non energy minerals	n/a	n/a	n/a	
Grazing	2016 billed AUMs: 8,357 AUMs	2016 grazing fee: \$2.11/AUM	Grazing could continue indefinitely if forage resources are managed sustainably.	Market prices for cattle and sheep and resource protection needs and range conditions (due to drought, fire, etc.) can affect AUMs permitted and billed.
Cultural resources	Indigenous communities often use natural resources to an extent and in ways that are different from the general population, and the role that natural resources play in the culture of these indigenous communities may differ from that of the general population. Culturally important sites and unique natural resources, by definition, have limited or no substitutes. Recognizing this is a critical consideration in land management because it may affect consideration of tradeoffs. MTNM contains substantial cultural resources that have not been fully surveyed. Tribes use the sacred sites within MTNM for hunting; fishing; gathering; wood cutting; and for collection of medicinal and ceremonial plants, edible herbs, and materials for crafting items like baskets and footwear.			
Benefits of nature	Services provided by nature underpin all sectors of a local economy. As many of these services are not sold in markets, we have limited information on their prices or values. Specific benefits related to RGDNM include protection of crucial habitats for deer, elk, desert bighorn sheep, pronghorn, and endemic plant species that inhabit rare habitat types such as hanging gardens.			

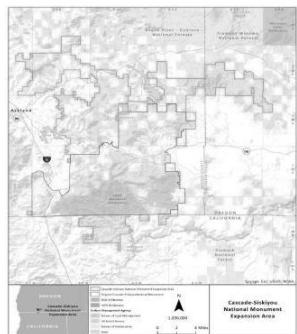
^aThis value represents the estimated consumer surplus associated with general recreation for the Intermountain region from the USGS Benefit Transfer Toolkit (https://my.usgs.gov/benefit_transfer/). Consumer surplus represents values individuals hold for goods and services over and above expenditures on those goods and services.

^bAll prices are from EIA.gov.



Cascade-Siskiyou National Monument

DRAFT



Introduction

The purpose of this paper is to provide information on the economic values and economic contributions of the activities and resources associated with Cascade-Siskiyou National Monument (CSNM or Monument). A brief economic profile of Jackson and Klamath Counties, OR, and Siskiyou County, CA, are also provided.

Background

The CSNM was established on June 9, 2000, by President Clinton (Proclamation 7318). The 65,000-acre Monument was the first such area to be established primarily to protect biodiversity. To date, BLM has acquired 13,355 acres of private inholdings within the original Monument boundary. Acquisitions have been by purchase (primarily through Land & Water Conservation Funds) or exchange (primarily legislated exchanges). President Obama issued Proclamation 9564 on January 12, 2017, expanding the Monument boundary by almost 48,000 acres to provide "habitat connectivity, watershed protection, and landscape-level resilience" for the area's ecological and other values. Expansion of the Monument includes areas identified for their ecological contribution to the purposes of the original designation.¹ Together, these areas represent approximately 48,000 acres 42,349 in OR, and 5,275 in CA.

CSNM's 113,341 acres accommodate hunting, fishing, recreation, and grazing. Valid existing rights such as timber leases and rights-of-way, among other activities, are recognized. The historic and scientific resources identified in the Proclamation are protected, as well as providing opportunities for scientific study. The Monument contains rare and endemic plants such as Greene's Mariposa lily, Gentner's fritillary, and Bellinger's meadowfoam. It also includes 38 miles of the Pacific Crest National Scenic Trail and the 24,707-acre Soda Mountain Wilderness within its borders. The CA portion of the expansion area is co-mingled with state lands managed by the California Department of Fish & Wildlife. The BLM lands are managed in a manner consistent with the state Wildlife Management Area. Activities are subject to decisions made in current and future BLM resource management plans (RMP), which include public participation. The CSNM lies entirely within the recognized aboriginal territory of the Klamath Tribes (Klamath, Modoc and Yahooskin Paiute). Traditional cultural plants and spiritual places, such as Pilot Rock, are important to the Shasta tribes. The CA portion of the expansion area includes the 320-acre Jenny Creek Area of Critical Environmental Concern (ACEC), which is associated with tribal spiritual values.

Cascade-Siskiyou National Monument	
Location: Jackson County, OR (original and expanded); Klamath County, OR, and Siskiyou County, CA (expansion area)	
Managing agencies: BLM	
Adjacent cities/counties/reservations:	
<ul style="list-style-type: none">• Natural and cultural resources of Klamath and Shasta Tribes (potentially other tribes)• City of Ashland, OR• Contains facilities owned and managed by the Bureau of Reclamation	
Resource Areas:	
<input checked="" type="checkbox"/> Recreation <input type="checkbox"/> Energy <input type="checkbox"/> Minerals	
<input checked="" type="checkbox"/> Grazing <input checked="" type="checkbox"/> Timber <input checked="" type="checkbox"/> Scientific Discovery	
<input checked="" type="checkbox"/> Tribal Cultural	

¹The expansion area includes the Horseshoe Ranch and Jenny Creek areas in Siskiyou County, CA; the upper Jenny Creek Watershed, the Grizzly Peak area, Lost Lake, the Rogue Valley foothills, the Southern Cascades area (including Moon Prairie and Hoxic Creek), all in Jackson County, OR; and some of the area surrounding Surveyor Mountain, including Old Baldy and Tunnel Creek wetland in Klamath County, OR.

A substantial number of acres within both the original Monument and the expansion area are designated as Oregon and California Railroad Revested (O&C) Lands. These lands are covered by the O&C Act of 1937, which mandates that those lands determined to be suitable for timber production shall be managed for,

“permanent forest production and the timber shall be sold, cut and removed in conformity with the principal [stet] of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing the economic stability of local communities and industry, and providing recreational facilities.” Further, the O&C Act provides: “The annual productive capacity for such lands shall be determined and declared as promptly as possible after the passage of this Act, but until such determination and declaration are made the average annual cut therefrom shall not exceed one-half billion feet board measure: Provided, That timber from said lands in an amount not less than one-half billion feet board measure, or not less than the annual sustained yield capacity when the same has been determined and declared, shall be sold annually, or so much thereof as can be sold at reasonable prices on a normal market.”

There are currently three lawsuits pending on the designation of the CSNM expansion area related to O&C lands (Association of O&C Counties. v. Trump, No. 1:17-cv-00280-RJL (D.D.C. filed on February 13, 2017); Murphy Co. v. Trump, No. 1:17-cv-00285-CL (D. Or. filed on February 17, 2017); AFRC v. United States, No. 1:17-cv-00441-RJL (D.D.C. filed on March 10, 2017)). The Klamath County Portion of the CSNM expansion area is 99 percent O&C lands.

Public Outreach Prior to Designation

Prior to Monument designation, the area was designated as the Cascade Siskiyou Ecological Emphasis Area (CSEEA). The CSEEA was established in the 1994 Northwest Forest Plan and the 1995 Medford District RMP primarily because of its unique, diverse ecological and biological characteristics. In developing the CSEEA RMP, BLM conducted five field tours and held one meeting in 1999, covering both OR and Northern CA. During the scoping period, the agency received 427 letters, cards, and e-mails, and recorded 153 comments from the public meeting. The majority of comments fell into two groups: those supporting the special ecological emphasis designation (218) and those against further restriction of public land uses (128). Some letters supported a more middle-ground approach (29), while others requested more information without voicing an opinion (47). After coding and analyzing the letters and comments, BLM identified 54 issues, including ecological concerns, land use, and government control, among others. The comments supporting the CSEEA designation generally emphasized preservation and restoration of ecological values. Those against the designation generally raised concerns about restrictions on access to public resources and increased Federal control over public and private lands. The CSEEA Draft Management Plan/Environmental Impact Statement distribution included seven tribes: Confederated Tribes of Siletz, Quartz Valley Indian Reservation (Shasta Tribes), Shasta Nation, Confederated Bands [Shasta] Shasta Upper Klamath Indians, Confederated Tribes of the Rogue-Table Rock and Associated Tribes, Confederated Tribes of Grand Ronde, and the Klamath Tribes. Proclamation 7318 drew heavily from the most-protective alternatives in the CSEEA Draft Plan.

Five studies/reports from the scientific community were provided to Interior from 2011 to 2015. Following these publications, 85 scientists sent a letter to former Secretary Sally Jewell requesting consideration of monument expansion in order to adequately protect the resources, objects, and values for which the original monument was designated. Senators Ron Wyden (D-OR) and Jeff Merkley (D-OR) introduced the *Oregon and California Land Grant Act of 2015* (S. 132), which would have protected most of the areas in the proposed Monument expansion through conservation and recreation designations. A

public meeting was held in October 2016 in Ashland, OR, to hear public opinions about the CSNM expansion proposal. Approximately 500 people attended the meeting; a majority of speakers supported the expansion proposal. Attendees referenced the science-based rationale for expanding the Monument, including threats to the area's fragile natural resources, as well as benefits to the local tourism industry. The counties of Jackson (OR), Klamath (OR), and Siskiyou (CA) also hosted additional public meetings to allow for public input into the monument expansion. Collectively, approximately 600 people attended these county meetings.

A written comment period was sponsored by Senators Wyden and Merkley. A total of 5,488 comments were received with approximately three-fourths in favor of the expansion for scientific, recreational, environmental and economic reasons, among others. Opponents expressed concern that a larger Monument would hurt the region's economy with limits on logging and grazing. State Representatives Peter Buckley and Kevin Talbert, and the late State Senator Alan Bates, publicly endorsed the expansion. The two closest cities in OR, Ashland and Talent (City Councils, Mayors, and Chambers of Commerce), all formally endorsed expanding the Monument. The Klamath Tribes submitted a letter of support, noting that the expansion area is "critical to provide for more appropriate watershed scale management..." (November 2016). The Jackson County Board of Commissioners, Klamath County Board of Commissioners, Medford/Jackson County Chamber of Commerce, and Siskiyou County Supervisors expressed opposition to expansion. The objections included legal and economic impacts, as well as a lack of consensus on the scientific merits.

Local Economy and Economic Impacts

The CSNM is in Jackson and Klamath Counties, OR, and Siskiyou County, CA. As summarized in Table 1, Jackson and Klamath Counties account for 7% of the State of OR's population. Klamath County has a higher Native American population (6.3%) than the state and national levels. Siskiyou County has 0.1% of the population in CA with a higher Native American population (7.4%) than in the state and nation. All of the counties in the CSNM have higher unemployment rates and lower median household incomes than for the states. Although Klamath County's unemployment rate of 5.1% is higher than the state and national averages, the state of OR highlighted that this level is at or ties the historic low unemployment rate. The populations of Siskiyou and Klamath Counties have remained flat to a low increase over the past 20 years, while Jackson County has increased by over 42%.

The USDA Economic Research Service (ERS) has developed a set of county-level typology codes that captures a range of economic and social characteristics. The CSNM counties are classified as follows:

- Low Employment Klamath and Siskiyou Counties (less than 65% of residents age 25-64 were employed in 2008-2012)
- Retirement Destination Jackson County (number of resident 60 and older grew by 15 percent or more between 2000 and 2010)
- No dependence on farming, mining, or recreation, and no persistent poverty

Two reports reveal a growing economy in Jackson County since the original Monument designation, continuing previous growth trends. Non-service jobs, which were becoming an overall smaller share of the Jackson County economy before Monument designation, declined only 4% from 2001 to 2015.

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Activities and Resources Associated With CSNM

Activities taking place at CSNM include:

- **Recreation:** There were 198,213 visits to CSNM in 2016. This reflects average annual growth of 4.6% over 15 years. As summarized in Table 2, CSNM visitors spent approximately \$11.8 million in 2016, supporting 200 jobs and \$9.3M in value added in the local communities. This amounts to over \$24 of economic output per \$1 of the Monument's Fiscal Year 2015 budget. Table 3 compares pre- and post-designation average annual visits for select recreation activities and sites in both the original and expanded area. Hunting and fishing is regulated by the Oregon Department of Fish and Wildlife, which has data available on the numbers of licenses issued.
- **Energy:** There has been no production of coal, oil, gas, and renewables in the Monument since designation. The potential for these energy resources within the Monument is low to non-existent. The Bureau of Reclamation is producing hydropower and has critical infrastructure within the CSNM at Keene Reservoir. While the Green Springs Powerplant was not in the original Monument boundary, there are supporting facilities within the original boundary. The Green Springs Powerplant is in the CSNM expansion area. Information is not available at this time on whether Reclamation's facilities are impacted, either positively or negatively, by the CSNM expansion area. USGS reported that CSNM is adjacent (immediate east) to area of high geothermal favorability.
- **Energy Transmission.** There are 17.78 miles of electrical transmission lines in the original Monument. There are 17.82 miles of electrical transmission lines and 7.67 miles of gas line in the expanded Monument.
- **Non-Energy Minerals:** Since designation, no mineral materials has been commercially sold from within the CSNM. Mineral materials from CSNM quarries has been used to maintain Monument roads since designation, as described in the RMP/ROD for the Monument. There are no mining claims in the Monument. There were no mining claims in the expansion area during the five years prior to the Monument expansion.
- **Grazing:** BLM does not currently have data on the actual use of forage within and outside of the CSNM; the AUM numbers reported are for the entire allotment. Table 4 provides the permitted and billed AUMs for the original and extension areas of the Monument. As summarized in Table 2, about 6 jobs were supported by 974 AUMs related to the original Monument, generating about \$0.3 million in economic output in 2016. For the expansion area allotment, about 20 jobs were supported by 2,945 AUMs, generating about \$0.8 million in economic output in 2016.
- **Timber:** The Monument Proclamation states, “[t]he commercial harvest of timber or other vegetative material is prohibited, except when part of an authorized science-based ecological restoration project aimed at meeting protection and old growth enhancement objectives. Any such project must be consistent with the purposes of this proclamation. No portion of the monument shall be considered to be suited for timber production, and no part of the monument shall be used in a calculation or provision of a sustained yield of timber. Removal of trees from within the monument area may take place only if clearly needed for ecological restoration and maintenance or public safety.”
 - **Within Original CSNM Designation.** 36 thousand board feet have been harvested; timber was removed only for the purposes of public safety.
 - **CSNM Expansion Area.** Since Monument expansion, approximately 310,000 board feet have been harvested from within the OR portion of the expansion area under timber sale contracts that were entered into prior to January 12, 2017. These timber sales generated about \$200,000 in value added and supported an estimated 4 jobs. The contracts are considered valid existing rights and will be completed, including the approximately 2.9 million board feet of timber that remain to be harvested. Harvesting this timber, when and if it occurs, would general economic contribution and support employment. The site conditions

- of the CA portion of the expansion area do not support commercial-grade timber resources.
- **Scientific Investigation:** The original Monument supports studies of ecology, evolutionary biology, wildlife biology, entomology, and botany. Proclamation 9564 notes that

"[s]ince 2000, scientific studies of the area have reinforced that the environmental processes supporting the biodiversity of the monument require habitat connectivity corridors for species migration and dispersal. Additionally, they require a range of habitats that can be resistant and resilient to large-scale disturbance such as fire, insects and disease, invasive species, drought, or floods..."

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A May 2017 [publication](#) describes how big data and fine-scaled modeling were used to (1) evaluate an existing network of protected areas in the Klamath Siskiyou Bioregion of southern OR and northern CA (includes CSNM), and (2) to identify and prioritize new areas for protection. The study, funded by BLM and NPS, builds on the work of a number of state and federal partners, including USFS, USGS, and the Corps of Engineers. The authors used 16 Partners in Flight focal bird species as indicators of priority habitats and habitat conditions. They hypothesized that current protected area allocations do not have adequate abundance of some conservation focal species and their habitats. This hypothesis was tested using models to evaluate the region's network of federally managed lands and protected areas. Senator Merkley is quoted in several press releases: "This study offers robust scientific evidence that expanding the Cascade-Siskiyou National Monument provides critical protection to an amazing ecosystem found nowhere else in the world, and will serve Oregonians well for decades to come."

- **Tribal Cultural Resources and Subsistence Living:** CSNM provides for the collection of certain natural materials by Native Americans under BLM permit. Dead and down wood is allowed to be collected for campfires within the CSNM, and the noncommercial gathering of fruits, nuts, berries, and mushrooms is also allowed. No data are available on the quantities harvested. The Klamath Tribe has cited the *American Indian Religious Freedom Act* (AIRFA) as the foundation for their support of the Maka Oyate Sundance ceremony, which is held annually within the Monument. However, AIRFA does not guide BLM management of the ceremony site. As already discussed above, the Klamath and Shasta tribes (potentially others) have natural, cultural, and spiritual values associated with the original and expanded areas.

"But for" the CSNM Designation

If the Monument had not been designated:

- **Recreation.** Annual visitation trends would likely not have substantially changed.
- **Energy.** There would still be no production of oil, gas and renewables, because the potential for these energy resources is low to non-existent..
- **Non-Energy Minerals.** It is likely that gravel production would have continued from the quarries had the Monument not been designated. Although speculative, it is possible that the pre-Monument expansion average of 342 cubic yards of rock would have continued to have been sold annually from quarries.
- **Grazing:** It is likely that grazing would have continued within the original CSNM, as the legislated grazing buyout would likely not have occurred. Grazing would likely have continued at a similar level to the pre-designation utilization, as well as to post-designation levels in the expansion area. The two allotments that were vacant for the five years preceding original Monument designation (the Agate and Siskiyou allotments) likely would not have been utilized had the Monument not been designated, as outside factors appear to have led to their vacant status.

- **Timber:** In the absence of the original Monument and OR portion of the expansion area, additional timber production would be expected, as described below. The site conditions of the CA portion of the expansion area do not support commercial-grade timber resources.

Within Original CSNM Designation. Under the 1995 Medford District RMP, approximately 19,400 acres of BLM-administered lands were allocated to Southern General Forest Management Area with a primary objective of providing a sustainable supply of timber and other forest products. However, no current information is readily available regarding the amount of volume that may have been produced from these acres since Monument designation in 2000. It is well known that this part of the Ashland Resource Area is characterized by low site capabilities, and relative to other areas in the Medford District, is considered a low timber production area. Some timber harvest would have occurred for improving forest stand survival and growth, fuels reduction, pine site restoration, and regeneration harvest; however, it would be overly-speculative to estimate actual timber volumes that may have been produced.

CSNM Expansion Area. Based on preliminary analysis, the OR portion of the expansion likely reduces sustained yield timber production opportunities by 4-6 million board feet per year, and commercial harvest in reserved land use allocations by 400 thousand board feet per year. Over a 50-year period, annual sustained-yield timber harvest is projected to be 200-300 million board feet less than it would have been without the designation. This is due to explicit restrictions in the proclamation prohibiting sustainable timber harvest. Commercial harvesting in reserved land use allocations would likely be reduced by 20 million board feet over the same 50-year time period..

- **Scientific Investigation:** Scientific studies/reports and the 2015 open letter from 85 scientists² provided scientific evidence and best professional judgment that the original boundaries were too small to ensure persistence of the many biological and macro-scale “Objects of Scientific Interest” that the Monument was originally established to protect. The interdisciplinary scientific group concluded that population pressures, adjacent land uses, and climate trends made the current boundaries inadequate. The expansion area is asserted to improve landscape and watershed connectivity with nearby federal lands, which help sustain populations of wide-ranging species.
- **Tribal Cultural Resources and Subsistence Living:** The sites, uses, and special designations would still exist. BLM does not have sufficient information to predict whether designation has impacted cultural uses of the monument. However, the proclamation requires BLM to provide

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²Alexander, J. D. et al. 2017. Using regional bird density distribution models to evaluate protected area networks and inform conservation planning. *Ecosphere* 8(5):e01799.

Frost, E., P. Trail and D. Odion. 2016. The ecological need to expand the Cascade-Siskiyou National Monument: Evidence from landscape-scale conservation assessments. Unpublished report, 12 pp. + maps.

Frost, E. and P. Trail. 2016. Objects of Interest in areas proposed for expansion of the Cascade-Siskiyou National Monument. Unpublished report, 81 pp.

Open letter from scientists, 2015. Recommended expansion of the Cascade-Siskiyou National Monument, signed by 85 natural resource scientists and submitted to Secretary of Interior Sally Jewell. May 28, 2015.

Trail, P. and E. Frost. 2015. Protecting the Cascade-Siskiyou National Monument from climate change: The ecological need for Monument expansion. Unpublished report, 14 pp.

Frost, E., D. Odion, P. Trail, J. Williams, J. Alexander, B. Barr, R. Brock, D. DellaSala, P. Hosten, S. Jessup, F. Lang, M. Parker, J. Rossa, D. Sarr and D. Southworth. 2011. Cascade-Siskiyou National Monument boundary study: Identification of priority areas for Monument expansion. Unpublished report, 14 pp.

DellaSala, D. A., et al. 1999. A global perspective on the biodiversity of the Klamath-Siskiyou ecoregion. *Natural Areas Journal* 19:300-319.

access by members of Indian tribes for traditional cultural and customary uses, consistent with the American Indian Religious Freedom Act (42 U.S.C. 1996) and Executive Order 13007 of May 24, 1996 (Indian Sacred Sites). The Klamath Tribes commented on the need to protect Jenny Creek as part of their commitment to restoring anadromous fish to the Upper Klamath River Basin, and to protecting and restoring resident species. They wrote, "Maintaining and improving the health and water quality of tributary streams to the Klamath River, such as Jenny creek, is vital to future anadromous fish restoration efforts and to provide for future viability of the unique species that currently the streams. Species of particular concern are the Jenny Creek redband trout and Jenny Creek suckers" (November 2016).

Table 1. State and County Economic Snapshot

Measure	Jackson County, OR	Klamath County, OR	State of OR	Siskiyou County, CA	State of CA
Population, 2016 ^a	208,363	65,972	3,939,233	43,895	38,421,464
American Indian and Alaska Native (alone or in combination) population as a percent of the total ^a	2.9%	6.3%	3%	7.4%	1.9%
Unemployment Rate, April 2017 ^b	4.3%	5.1% ^c	3.7%	7.4%	4.5%
Median Household Income, 2015 ^a	\$44,028	\$40,336	\$51,243	\$37,170	\$61,818

^aU.S. Census Bureau, 2011-2015 American Community Survey; Native American population alone or in combination with one or more other races.

^b <https://www.bls.gov/eag/eag.or.htm>

^cThe State of OR reports that this is at or ties the historic low unemployment rate.

Table 2. Estimated Economic Contributions, 2016

Activities	Economic Output, \$ millions	Value added (net additions to GDP), \$ millions	Employment supported (number of jobs)
Recreation*	16.6	\$9.3M	200
Grazing	1.1	Grazing value- added is not available	26
Timber	0.6	0.2	3
Cultural resources	Unquantifiable; some values would be included in recreation		

Table 3. CSNM Average Annual Visits per Select Recreation Activities and Sites

Recreational Activities & Sites	Prior to Original Designation (1998-2000) ^{a,b}	Original Designation (2000-2017)	Prior to Expansion (2012-2017)	Expansion (2017-2017)
Backpacking	N/A ^c	2,839	N/A	N/A
Camping	57,625	17,658	81,018	N/A
Fishing	2,088	7,856	3,240	N/A
Hiking/Running	29,090	255,736	81,021	N/A
Hunting, Big Game	23,001	114,981	48,611	N/A
Skiing XC	N/A	37,026	N/A	N/A
Snowmobiling	N/A	6,061	N/A	N/A
Hyatt Lake CG	13,928	19,976	7,206	N/A
Hyatt Lake Day-Use	N/A	284	966	N/A
BuckPrairie Winter Trails	Not in Original Monument	Not in Original Monument	23,966	N/A
Wildcat CG	2,224	6,056	1,130	N/A
Pacific Crest Trail	1,921	17,812	17,812	N/A
Grizzly Peak Trails	Not in Original Monument	Not in Original Monument	5,526	N/A
Table Mt. Tubing Hill	Not in Original Monument	Not in Original Monument	2,496	N/A

^aAll data are derived from the Recreation Management Information System (RMIS).^bRMIS data are not available prior to 1998, so data prior to original Monument designation cover only a 2-year period.^cN/A -- data are not available or were not collected.

Table 4. AUMs Permitted and Billed, CSNM, 1995 2016

Year	Original CSNM Designation			CSNM Expansion Area		
	Permitted Use	AUMs Billed	% Billed	Permitted Use	Sold AUMS	% Billed
1995	6,002	3,406	56.70%	N/A	N/A	N/A
1996	6,002	4,180	69.60%	N/A	N/A	N/A
1997	6,002	4,158	69.30%	N/A	N/A	N/A
1998	6,002	4,333	72.20%	N/A	N/A	N/A
1999	6,002	4,537	75.60%	N/A	N/A	N/A
2000	6,002	4,190	69.80%	N/A	N/A	N/A
2001	5,793	3,661	63.20%	N/A	N/A	N/A
2002	5,350	3,348	62.60%	N/A	N/A	N/A
2003	5,350	3,690	69.00%	N/A	N/A	N/A
2004	5,350	3,967	74.10%	N/A	N/A	N/A
2005	5,350	4,746	88.70%	N/A	N/A	N/A
2006	5,350	3,418	63.90%	N/A	N/A	N/A
2007	5,350	3,264	61.00%	N/A	N/A	N/A
2008	5,350	2,026	37.90%	N/A	N/A	N/A
2009	1,437	763	53.10%	N/A	N/A	N/A
2010	1,317	1,009	76.60%	N/A	N/A	N/A
2011	1,317	1,074	81.50%	N/A	N/A	N/A
2012	1,317	1,217	92.40%	2,833	2,691	95.00%
2013	1,317	1,217	92.40%	2,833	2,659	93.90%
2014	1,317	1,217	92.40%	2,833	3,067	108.30%
2015	1,317	974	74.00%	2,833	2,851	100.60%
2016	1,317	974	74.00%	2,833	2,945	104.00%

Source: BLM.

DRAFT June 28, 2017



Organ Mountains - Desert Peaks National Monument

Economic Values and Economic Contributions

DRAFT

Introduction

The purpose of this paper is to provide information on the economic values and economic contributions of the activities and resources associated with Organ Mountains – Desert Peaks National Monument (OMDPNM) as well as to provide a brief economic profile of Doña Ana County.¹

Background

Organ Mountains-Desert Peaks National Monument (496,330 acres) was established by Presidential Proclamation on May 21, 2014. Prior to designation, the area was managed by the BLM and continues to be following designation. The BLM manages for multiple uses within the Monument (recreation, grazing, etc.), while protecting the vast array of historic and scientific resources identified in the Proclamation and providing opportunities for scientific study of those resources. The resources identified in the Proclamation include visual, cultural, geologic, paleontological, ecological, and scientific resources. Overall, multiple use activities are allowed in Organ Mountains-Desert Peaks National Monument that are compatible with the protection of resources and objects identified in the Presidential Proclamation. Multiple use activities are subject to decisions made in current and future BLM resource management planning efforts, which include public participation. National Monuments and other conservation areas managed by the BLM continue to allow for multiple uses according to the Federal Land Policy and Management Act (FLPMA).

Organ Mountains Desert Peaks National Monument

Location: Doña Ana County, NM

Managing agency: BLM

Adjacent cities/towns: Las Cruces, Mesilla

Adjacent counties: Luna County, NM (a small portion of the Monument is in Luna County)

Resource Areas:

- Recreation Energy Minerals
- Grazing Timber Scientific Discovery
- Tribal Cultural

Public outreach prior to designation

Meetings hosted by Congressional delegations, the Secretary's office, and community groups were held prior to designation. BLM participated in these meetings as subject matter experts and did not keep records of dates, attendees or content of these meetings. Support for the creation of OMDPNM was expressed by New Mexico representatives and senators as well as elected officials of the county and nearby cities and towns (Mesilla, Las Cruces, El Paso) and various community members and groups.

¹ The BLM provided data used in this paper.

Local Economy and Economic Impacts

Table 1 presents socio-economic metrics for Doña Ana County and the state of New Mexico. The County contains roughly 10% of the State's population.

The top three sectors in Doña Ana County -- healthcare and social services, retail trade, and arts, entertainment, accommodation and food services -- make up nearly 60% of the total employment (see *Figure 1*).² In recent years, the county has experienced slightly higher rates of unemployment and lower levels of median household income compared to the state.

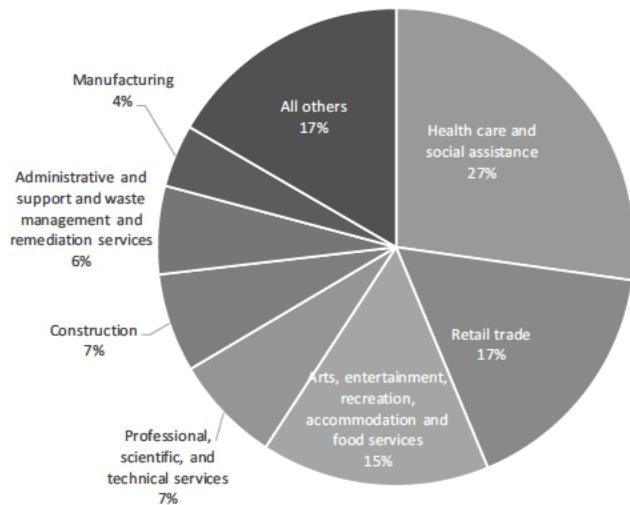
Table 1. Doña Ana County and State of New Mexico Economic Snapshot

Measure	Doña Ana County, NM	New Mexico
Population, 2015 ^a	213,963	2,084,117
Unemployment rate, May 2017 ^b	7.0%	6.6%
Median Household Income, 2015 ^a	\$38,853	\$44,963

^a U.S. Census Bureau, 2011-2015 American Community Survey

^b<https://www.dws.state.nm.us/Portals/0/DM/LMI/TA2017.pdf>.

Figure 1. Percent of employment by sector in Doña Ana County, 2015



*Other includes agriculture/forestry; mining, quarrying and oil extraction; utilities; wholesale trade; finance and insurance; real estate; information; educational services; and transportation and warehousing. Each of these represents less than 4% of total employment. Source: 2015 County Business Patterns, U.S. Census Bureau.

² 2015 County Business Patterns, US Census Bureau

The figures provided below represent two different types of economic information: "economic contributions," and "economic values." Both types of information are useful for decision making. Economic contributions track expenditures as they cycle through the local and regional economy, supporting employment and economic output.

Economic values, in contrast to economic contributions, represent the net value, above and beyond any expenditures, that individuals place on goods and services.³

For commodities bought and sold in markets (e.g., oil, gas, etc.), the economic values are closely related to the market prices of the commodities. For goods and services such as recreation that are typically not bought and sold in markets, the values are estimated based on visitor surveys which attempt to capture individual values above and beyond their direct expenditures. The economic value in FY 2016 associated with recreation is estimated to be about \$X million

Definitions

Value Added: A measure of economic contributions; calculated as the difference between total output (sales) and the cost of any intermediate inputs.

Economic Value: The estimated net value, above any expenditures, that individuals place on goods and services; these are particularly relevant in situations where market prices may not be fully reflective of the values individuals place on some goods and services.

Employment: The total number of jobs supported by activities.

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Activities and Resources Associated With Organ Mountains-Desert Peaks National Monument

Information on the economic contributions associated with the activities occurring at Organ Mountains-Desert Peaks National Monument are provided below.

- **Recreation:** Opportunities for recreation include hiking, camping (both developed and dispersed), climbing, viewing prehistoric and historic sites, viewing geologic sites, horseback riding, mountain biking, and use of OHVs on existing roads and trails. Hunting and trapping is also permitted as regulated by the New Mexico Department of Game and Fish.

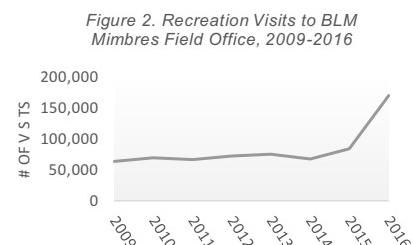
Table 2. OMDPNM Estimated Economic Contributions, 2016

Activities	Economic output (\$millions)	Value added (net addition to GDP), \$ millions	Employment supported (number of jobs)
Recreation	\$23.6	\$13.0	306
Grazing	\$11.7	Grazing value-added is not available	250

³ It is not appropriate to sum values for economic contributions and economic values because they represent different metrics.

Annual recreation visitation data is available for specific recreation sites of the Mimbres Field Office that are now within OMDPNM (see *Figure 2*). The Monument has four separate units which, along with the dispersed recreation use across the Monument, makes gathering visitation statistics challenging; pedestrian and vehicle counters have recently been installed but these data are not yet available. The estimates of visitation should be considered a lower bound. In FY 2016 BLM estimated that there were xx recreation visits to the Monument. BLM believes that the increase in visitation in FY 2016 is a result of the media attention the area received in 2015 for Monument designation.⁴

Recreation activities provide the opportunity for economic activity to be generated from tourism for an indefinite period of time. The economic contributions occur annually, and in cases where visitation increases over time, recreation generates additional activity each year. These contributions affect the regional and state economies. Recreation activities based on visitation to BLM-managed land are estimated to contribute about \$13 million in value added (net economic contributions) and support 306 jobs.⁵



- **Energy:** In general, the scope, magnitude, and timing of energy and minerals activities are closely related to supply and demand conditions in world markets and the market prices of mineral commodities. Local or regional cost considerations related to infrastructure, transportation, etc. also may play a role in defining the supply conditions. There has been no energy production from coal, oil and gas, or renewables since at least five years prior to designation. The majority of the Monument area has prior designations that prohibit leasing that date back at least 20 years prior to designation. There have been no nominations for coal, oil, or gas leasing in Doña Ana County in at least 10 years and there are no leases in OMDPNM.⁶
 - **Coal.** There have been no coal developments in the Monument area.
 - **Oil and gas.** A USGS study of mineral resources of approximately 7,300 acres of the Organ Mountains found the mineral resource potential for oil and gas to be low throughout the study area.⁷ A USGS study of mineral resources of a large portion of the Potrillo Mountains area of the Monument found low energy resource potential.⁸
- **Non-fuel minerals.** The last known mineral production within the Monument was in 2008 from a designated Common Use Area, which contains travertine boulders. Mineral resource studies of areas within the Organ Mountains and Potrillo Mountains found common varieties of carbonate rock and sand and gravel, as well as volcanic cinder, but low potential for near-surface base (copper, lead, zinc, tin) and precious (gold, silver, platinum) metals. Relics of historic mining exist but there has been no active mining in over two decades.

⁴ BLM data.

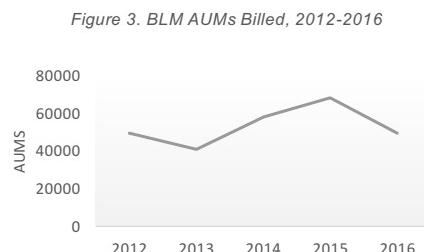
⁵ BLM data

⁶ BLM data.

⁷ <https://pubs.usgs.gov/bul/1735d/report.pdf>

⁸ <https://pubs.usgs.gov/bul/1735b/report.pdf>, note that what was known as the West Potrillo Mountains-Mount Riley WSA roughly coincides with what is now the Potrillo Mountains area of OMDPNM.

- **Timber.** The Monument contains a desert ecosystem and therefore does not have any timber resources.
- **Grazing.** The Monument proclamation allows for the continuation of all pre-designation grazing activities, including maintenance of stock watering facilities. The 38 grazing allotments that are wholly or partially contained within the boundaries of OMDPNM include approximately 86,300 permitted Animal Unit Month (AUMs)⁹. In 2016, there were about 49,900 billed AUMs (*see Figure 3*). This level of grazing activity is estimated to support about 250 jobs and about \$11.7 million in economic output.¹⁰



- **Cultural, archeological, and historic resources.** OMDPNM contains 344 recorded archaeological sites spanning various eras of human history, including Paleoindian, Archaic, Formative, Protohistoric, and Historic period sites. The records of these sites were mostly documented in the 1970s and 1980s and contain little information. As of the FY2014 Manager's Report, only about 6,300 acres (about 1.3% of the Monument) had been inventoried for archaeological resources.¹¹ Artifacts common to the area include rock art, ceramics, and basket fragments. Remnants of ancient dwellings include those at La Cueva and a ten room pueblo in the Robledo Mountains. The La Cueva rock shelter was occupied from almost 5,000 BC through the historic period that followed the arrival of the Europeans. Approximately 100,000 artifacts have been recovered from this rock shelter.¹² The Monument also contains sites relevant to modern history such as Spanish colonization, the Civil War and the Euro-American exploration of the West. The ruins of the Dripping Springs complex, a mountain resort constructed in the last 1800s that was later converted to a sanitarium, lay scattered in a canyon in the Organ Mountains, while Outlaw Rock contains the inscription of Billy the Kid. More recent historical sites include bombing targets that were used to train WWII pilots. Paleontological resources are also available at OMDPNM, predominantly Permian Age fossil material. The primary resources include the fossilized tracks of the ancient animals whose fossil remnants can be found in the adjacent Prehistoric Trackways National Monument. Sites within OMDPNM also include fossil remnants of ancient giant ground sloths, birds, and voles. Additionally, OMDPNM contains unique geologic resources as the area has a violent geologic history of seismicity and volcanism. Kilbourne Hole is a low-relief volcanic crater over a mile wide and over 300 feet deep that was designated as a National Natural Landmark in 1975 and was

⁹ BLM measures an AUM as the amount of forage needed to sustain one cow and her calf, one domestic horse, or 5 sheep or goats for one month. <https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing/fees-and-distribution>.

¹⁰ BLM data.

¹¹ Organ Mountains-Desert Peaks National Monument FY2014 Manager's Annual Report, BLM

¹² https://www.blm.gov/ncls_web/sites/nm/st/en/prog/NLCS/OMDP_NM/omdp_recreational.html

used for training the Apollo astronauts due to its lunar landscape. The Monument's volcanic fields contain other smaller volcanic craters, as well as cinder cones up to 1 million years old, lava tubes, steep-walled depressions, and pressure ridges. These various volcanic features have served as research sites for geology and volcanology. Other mountain ranges in the Monument have served as sites for research on desert soils, sedimentary rock, sedimentation, and stratigraphy.

Multiple Use and Tradeoffs Among Resource Uses

This section presents some information to help understand land management tradeoffs.

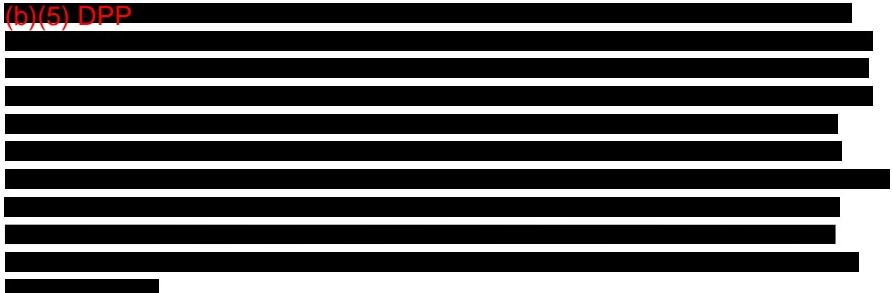
Decision-making often involves multiple objectives and the need to make tradeoffs among those objectives. However, tradeoffs and decision making are often subject to constraints, such as Monument designations. In general, market supply and demand conditions drive energy and minerals activity; societal preferences and household disposal income affect recreation activity levels; and market prices and range conditions affect the demand for forage. Culturally important sites and unique natural resources, by definition, have limited or no substitutes and thus tradeoffs are typically limited. A particularly challenging component of any tradeoff analysis is estimating the nonmarket values associated with OMDPNM resources, particularly the nonmarket values associated with cultural resources.

Planning for permitted resource use on National Monuments will involve trade-offs among different activities on the land area being managed in order to allow permitted activities that do not impair monument objects. In some cases, certain areas of the Monument may be appropriate for more than one use. After the careful consideration of tradeoffs, management decisions in those cases may prioritize certain uses over others. In other cases, land areas may be more appropriate for a particular use and activities could be restricted to certain areas of the Monument. Factors that could inform these tradeoffs include demand for the good or activity, prices, costs, and societal preferences. Other considerations might include the timeframe of the activity - how long the benefits and costs of a given activity would be expected to extend into the future. Trust responsibilities and treaty rights should also be considerations.

In considering any trade-offs, it is not just the level and net economic value associated with an activity that occurs in a given year that is relevant to decision making. Virtually all activities within the Monument occur over time and it is the stream of costs and benefits over a given period of time associated with each activity that is relevant. For example, recreation activities could continue indefinitely assuming the resources required for recreation remain intact and of sufficient quality for the activity. Likewise, the values associated with the natural and cultural resources could continue indefinitely provided they are not degraded by other activities. Grazing could also continue indefinitely as long as the forage resource is sustainably managed and remains consistent with the protection of monument objects. The stream of costs and benefits associated with some other non-renewable resources would be finite, however (assuming these activities were consistent with the designation). For example, oil, gas, coal and minerals are all non-renewable resources and would only be extracted as long as the resource is economically feasible to produce.

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Table 3. Summary of OMDPNM Activities and Economic Values, FY 2016

Activities	Level of annual activity	Economic Value	Timing	Drivers of current and future levels of activity
Recreation	FY 2016: 530,892 visitor days (BLM)	\$54.19/visitor day ^a	Visitation could continue indefinitely if landscape resources remain intact and of sufficient quality.	Societal preferences for outdoor recreation; disposable income; changing individual preferences for work and leisure time
Oil, gas, coal production	Little or none to date	FY 2016 average prices ^b : crude oil (WTI): \$41.34/bbl natural gas: \$2.29/mcf coal (subbituminous): \$12.08/ton	Development of energy and non energy minerals is subject to market forces (worldwide supply and demand, prices). Mineral extraction is non renewable and occurs only as long as the resource is economically feasible to produce.	Market prices of energy commodities affect both supply and demand. Local and regional cost considerations related to infrastructure and transportation are also relevant.
Grazing	2016 billed AUMs: 49,861	2016 grazing fee: \$2.11/AUM	Grazing could continue indefinitely if forage resources are managed sustainably.	Market prices for cattle and sheep and resource protection needs and range conditions (due to drought, fire, etc.) can affect AUMs permitted and billed.
Cultural resources	Indigenous communities often use natural resources to an extent and in ways that are different from the general population, and the role that natural resources play in the culture of these indigenous communities may differ from that of the general population. Culturally important sites and unique natural resources, by definition, have limited or no substitutes. Recognizing this is a critical consideration in land management because it may affect consideration of tradeoffs. BENM contains substantial cultural resources that have not been fully surveyed. Tribes use the sacred sites within BENM for hunting; fishing; gathering; wood cutting; and for collection of medicinal and ceremonial plants, edible herbs, and materials for crafting items like baskets and footwear.			
Benefits of nature	Services provided by nature underpin all sectors of a local economy. As many of these services are not sold in markets, we have limited information on their prices or values. Specific benefits related to BENM include protection of crucial habitats for deer, elk, desert bighorn sheep, pronghorn, and endemic plant species that inhabit rare habitat types such as hanging gardens.			

^aThis value represents the estimated consumer surplus associated with general recreation for the Intermountain region from the USGS Benefit Transfer Toolkit (https://my.usgs.gov/benefit_transfer/). Consumer surplus represents values individuals hold for goods and services over and above expenditures on those goods and services.

^bAll prices are from EIA.gov

^cReported average production of 21,396 cubic yards converted to tons using a conversion factor of 1.63 cu yards/ton.

^dUSGS Mineral Commodity Survey https://minerals.usgs.gov/minerals/pubs/commodity/sand_&_gravel/construction/mcs_2017_sande.pdf.